

Things to Know, Understand and Do For Chapter 16: Spontaneity, Entropy and Free Energy

By the end of Chapter 16, you should

Know how to...

Calculate entropy changes from tables of standard entropy values.
Identify common processes that are entropy-favored.
That the units of entropy are J/(mol K)
That elements in their standard states do not have 0 standard entropy values.
Use entropy and enthalpy values to predict if a reaction will be spontaneous.
Calculate the change in free energy (ΔG) at standard conditions for a reaction from the enthalpy and entropy changes or from the standard free energy of formation of reactants and products (ΔG_f)
That the free energy of formation of elements in their standard states is 0.
Calculate the free energy change from equilibrium constant and visa versa.
Predict whether a process is spontaneous.

Understand....

The concept of entropy and its relationship to spontaneity.
That entropy is a measure of matter and energy dispersal or disorder.
That entropy can be determined experimentally as the heat change of a reversible process.
How temperature influences whether a reaction is spontaneous.
And use Gibbs free energy (ΔG)
The connection between enthalpy and entropy changes and the Gibbs free energy change for a process.
Free energy changes with temperature.
The relationship between free energy change for a reaction, its equilibrium constant, and whether a reaction is reactant- or product- favored.

Ch 16 Homework

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Ch 16 Student Presentations

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